ADVANCEPI

Betriebshandbuch

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Thank you for flying ADVANCE

Our sincere thanks to you for your deciding on a PI - another ADVANCE quality product. We hope that you will enjoy many rewarding hours in the air with it.

This Operating Manual is an important component of the paraglider itself. In it there are instructions and important information about safety, care and maintenance. We therefore recommend that you carefully read through the manual before your first flight.

On www.advance.ch you will find the latest version of the manual and more information. Any new safety-related knowledge about the product will be published here on the website. Please contact your dealer or ADVANCE direct if you have any questions or problems.

Now we wish you a lot of fun with your PI and, as always, “happy landings”.

Team ADVANCE

About ADVANCE

ADVANCE is a worldwide leading paraglider manufacturer based in Switzerland. Since its founding in 1988 the company has continued to follow its own policies and ideas in both development and production. The result is fully-finished products with distinctive characteristics.

The team of experts behind the ADVANCE brand share both the passion for and confidence in their ADVANCE products. At home in the air themselves, they bring valuable personal experience and dedication to the workplace.

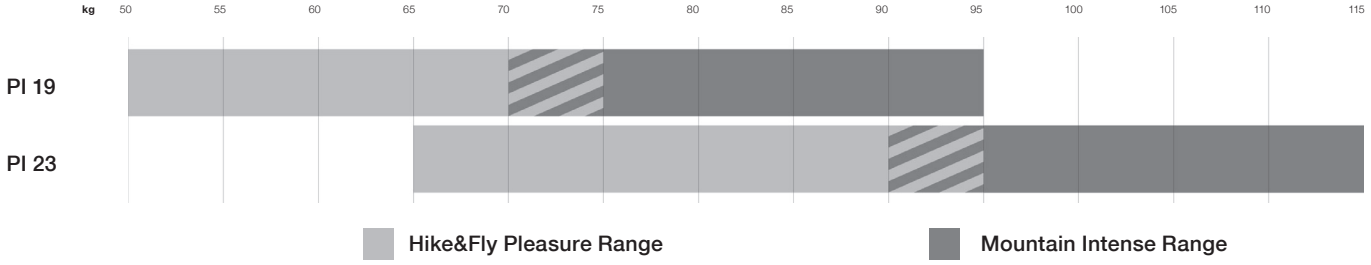
Thorough checking of the production process and supervision of the working practices in ADVANCE's own factory in Vietnam guarantee high quality work. A long-standing relationship with cloth and line manufacturers means that ADVANCE know-how finds its way directly into the development of new materials.

ADVANCE place great importance on after-sales service, and have a well-developed worldwide service network. A continuous exchange of experience with customers keeps new knowledge flowing in, which has an influence on ADVANCE products – and so the "Circle of Service" is completed.

The PI

The PI is a completely new development. Made of light materials, it has an ingenious line configuration that avoids the use of diagonal ribs, thus saving more weight.

Within the certified weight range the PI makes use of an extensive wing loading range and, as one of the lightest serial gliders, is intended for Hike & Fly pilots up to extreme alpinists. Soaring and thermal flying are certainly possible in good conditions.



Piloting requirements

The PI certified weight range covers very different wing loadings and this puts a correspondingly varied range of demands on its pilots:

- **Hike&Fly Pleasure Range**
  Here the PI is aimed at leisure Hike & Flyers who would like to spend some time thermaling after walking up an off road peak. Even allowing for the relatively small wing the PI climbs well and has a notable glide performance in this weight range. The PI really does offer an alternative low-end intermediate to the mountain walker, hiker, traveller, or just a weight-sensitive pilot.

- **Mountain Intense Range**
  This is the upper weight range, where the PI is intended for mountain and high-altitude touring. In the Mountain Intense Range the small wing provides dynamic flying fun with agreeable agile handling – suitable for pilots who have the experience to cope with the dynamic behaviour of a small wing. When flown in this weight range the PI is a wing for experienced pilots and frequent flyers.

General advice about paragliding

Flying a paraglider calls for appropriate training and a sound knowledge of the subject, as well as, of course, the necessary insurance cover and licence. A pilot must be able to correctly assess the weather conditions before taking off. His capabilities must be adequate for the actual paraglider.

Wearing an adequate helmet, suitable boots and clothing, and carrying an emergency parachute are essential. Before every flight all items of equipment should be checked for damage and airworthiness. A proper pre-takeoff check must also be carried out.

Every pilot bears sole responsibility for all risks, including injury or death, when participating in the sport of paragliding. Neither the manufacturer nor the seller of a paraglider can guarantee or be held responsible for the pilot's safety.

Handle with care

The ADVANCE PI is extremely weight-minimised and intended for a specific function. This puts correspondingly high demands on its use and care. A close relationship with the product and its characteristics is essential. Because of the choice of materials and its design the PI is sensitive to wear and damage with improper use.

The PI should never be dragged over the ground. Pointed and sharp objects such as stones or twigs can damage the fabric or the lines. ADVANCE recommend that you choose your takeoff surface carefully.

Caution: ADVANCE considers it important that you are aware of the light materials that make up the PI. The PI will only provide you with long-lasting pleasure if you look after it carefully. The label ‘Handle with Care’ is intended to remind you that the lifespan of this product depends to a large extent on your care and attention - every time it comes out of the bag.

Getting started

Delivery

Every ADVANCE paraglider has to be flown by the dealer before delivery to check for correct settings and trim. The dealer finally enters the date of the first flight on the type placard fastened on a rib at the centre of the wing. This entry together with your completed warranty form ensures that deficiencies in the product, due the manufacturer, are covered by the ADVANCE warranty. See ‘Warranty’ in the “Service” section.

Delivery of a PI includes a PIPACK, a compressing inner bag, a repair kit, a mini windsock in the glider colours and a “Getting Started” booklet.

Basic set up

At delivery the basic set up of the PI will be the original trim situation that the ADVANCE test team found to be best. Certification was also gained in this condition. Any alterations or changes to the paraglider, such as altering the line lengths or fitting different risers or quicklinks, will result in a loss of the glider’s certification. See section “Certification”.

Info: Optional risers with speed bar system and trimmers are available for the PI; take note that certification will not be valid if these are used.

Adjusting the brake lines

The brake line length should remain as set by the factory.

If you do have to reset the brake lines, however, there must be 8cm initial line movement between the brake handle fully released position and that brake position which first affects the wing in unaccelerated flight. We recommend a bowline knot for securing the brake handles. See Illustration in the Appendix.

Suitable harnesses

For the best combination with the PI ADVANCE recommends the EASINESS light harness, specially developed for the PI. But it is also possible to use the LIGHTNESS, or conventional light harnesses.

Fundamentally the PI can be flown with any harness that does not have rigid cross bracing (see section “Certification”).

Weight range

You can find the weight range of the two sizes in the “Technical Data” section. The weights shown there represent total in-flight weight. This includes the pilot’s weight, clothes and all the equipment (glider, harness, reserve, instruments etc.).

Flying at the lower or upper weight limits can affect the flying characteristics and handling of the paraglider. The glide ratio remains the same over the whole range, but the climbing performance changes. When the PI is flown in its upper weight region the higher wing loading results in a higher trim speed and more dynamic and agile flying characteristics.

Flying characteristics

We recommend that you make your first flights with a new glider in quiet conditions at a familiar place. A few pull ups in a problem-free area will, from the beginning, give you plenty of confidence in your PI's handling.

Takeoff

Before every takeoff do the following checks:

1. Harness and helmet done up, reserve OK?
2. Lines free?
3. Canopy open?
4. Wind direction and strength assessed?
5. Airspace and field of view free?

The PI A and B lines go to the A risers. The PI pulls up very evenly in both light and strong winds, without hanging or overshooting, in fact the PI takeoff behaviour is very easy. This is because of the lightest possible construction with nylon wires, small area and line attachments at every cell, thus doing away with a complicated internal structure.

> Tip: Before pulling up get your wing into the correct shape. While sorting the lines pull the brake lines in until you have the perfect curvature.

Takeoff in light wind (forward takeoff)

The PI is a well-behaved starter and needs only a modest tug, even in light wind. It is not necessary to step back and "run into" the lines. Lead the glider up with pronounced forward leaning, but without too much pull on the A risers, until the canopy is nicely above you. Any correcting during the pull up should only be done by deliberate walking under the canopy centreline; without using the brakes. After the correcting phase and a satisfactory visual check lift off is achieved, even in light wind, by a few brisk steps while leaning forward positively. The takeoff run can be shortened by using just the right amount of brake.

Takeoff in strong wind (reverse takeoff)

The reverse takeoff is especially recommended in strong wind. During the pull up you should walk towards the PI as necessary to control the rising rate. Turning round and lifting off turns out to be straightforward with the PI.

> Tip: In a strong wind it is possible to pull the PI up without using the risers; just release the brakes and put some light tension on the wing through the harness. With this technique the brakes can be used to control the wing all the time.

Tip: Playing with the glider on flat ground in wind promotes a good feeling for the wing. You can get to know the PI characteristics very well, and safely get the feel of taking off, stalling, the tendency to surge forward, and collapses.

The ADVANCE test team have a motto: An hour's ground handling is worth ten flights.

Note: ground practice creates wear on the material.

Normal flight

The PI glides best in calm air with fully released brakes. Light braking achieves minimum sink.

Despite the high degree of stability an active flying style is recommended in turbulent air. Collapses can thus be virtually completely avoided. Active flying means always keeping the wing above your head – in other words roll and pitch disturbances should be countered.

- If the angle of attack increases (e.g. wing goes back when entering a thermal, pilot swings forward, briefly release the brakes fully until the wing is back overhead.
- If the angle of attack decreases (e.g. wing dives forward, pilot swings back) brake the glider firmly with brief brake.

  Tip: if the wing feels too nervous in rough air about 20% brake will quieten the PI.

Always be careful not to get below minimum flying speed, and don't overreact with the brakes.

Turning flight

The PI has precise control response. It reacts directly and progressively to increasing brake input, once the brake line free movement has been taken up. Active weight shift will significantly assist steering requirements. The angle of bank can always be increased, stabilised or reduced by brake adjustment.

When circling in thermals choose your desired angle of bank and radius of turn with inside brake and allow the glider to circle steadily. Steady the outside wingtip with outside brake and, in particular, control the rate of turn with it. Strong outside brake will slow this down and improve the climbing qualities.

Caution: a high wing loading makes the PI a dynamic wing. Beware of a high sink rate!

Caution: to keep good manoeuvrability be careful to keep adequate PI airspeed while thermaling. Give your outside brake enough freedom!

Tip: If a brake line should break you can steer the PI when necessary using the B risers – with caution.

Accelerated flight

The development goal for the PI was to produce a lightweight glider, so add-ons were deliberately avoided. This is why the serial PI does not have a speed system on its risers. Optional risers with a speed system can be ordered, but a PI fitted with these is not certified (see Manual appendix).

Collapses

Collapses cannot be simulated with the PI because the A and B lines go to the same risers. Folding lines were fitted for certification tests.

Asymmetric collapses

The PI has a very tight and stable canopy. The highly loaded wing makes collapses a rarity, and an active flying style results in a virtually total avoidance of them under normal flying conditions.

If, however, the glider does suffer an asymmetric collapse at trim speed, the reaction to a 50% collapse will be slight turning which can be countered by light opposite braking, and heading can be maintained without problem. Normally the wing opens quickly without pilot action.

It is important that the brakes should be completely released immediately so that the wing can regain flying speed.

A poorly flown wing-over can cause a wingtip to roll inwards, resulting in a cravat. A cravat produces high drag which can cause strong rotation (wing goes into a turn). Oppose a rapid increase of the rate of turn using outside brake. Then open the cravatted wingtip with the help of the orange stabilo line. ‘Pumping’ can also be used to open a cravat more quickly. To do this apply brake on the cravatted side, up to 75% brake travel achieved within two seconds maximum, then release this brake immediately.

Symmetrical collapse (Front collapse)

After a front collapse the airflow will break away from the wing profile, and the wing will pitch back. After a short delay the pilot will swing back underneath the wing. Wait, without experimenting with the brakes, until the wing is again above you and flies again. After a large collapse the reopening behaviour can be dynamic, but reopening should still not be forced with excessive brake activity, otherwise there's a risk of a complete stall.

Fast descents

To get down quickly and efficiently the ADVANCE test team recommend a steep spiral. It is also possible to descend with big ears with the PI 23.

> Tip: Fast descents should be practised now and then in quiet conditions, so that they do not become an emergency when needed.

Big ears

PI 19
Big ears are not possible with the PI because the A and B lines are linked. This was done to reduce the total number of lines – for simplicity and weight-saving: the PI can lose height well enough by turning, wingovering and spiral diving. In any case, big ears would be difficult to do with such a small wing, and does not feel comfortable for the pilot.

PI 23
Unlike the PI 19 the PI 23 has an additional A base line which makes big ears possible. To apply big ears pull both of these outer A lines (marked with a red sleeve) quickly down together. This will collapse the wingtips which can easily be held in the folded position. To reopen just let the lines go; the PI 23 wingtips will open by themselves due to the high internal wing pressure.

By using the accelerate system the sink speed can be further increased. Depending on the situation the glider can be steered by weight steering.

Caution: Be careful not to encourage a stall while flying with big ears. Beware of applying brakes with big ears and avoid this method of descent with a wet glider.

Steep spiral

For the most comfortable way of doing this we recommend a neutral sitting position, without active weight shift.

Enter the spiral by progressively pulling a brake. Head and field of view should be directed in the turn direction. As the bank angle increases so will the rate of turn and the g force.

The paraglider behaviour can be divided into two phases: in the first phase a normal turn continuously tightens its radius with an increasing angle of bank. In the second phase the paraglider goes into its spiral mode. At this point the wing dives forward onto the horizon, together with increases in rotation rate, airspeed and g. During this manoeuvre try to keep a neutral sitting position and give in to the g force – your body will be pulled outwards.

Recovery results from progressive release of the inside brake. During recovery from a spiral with high sink speed and rotation rate careful release of the brake is necessary, and more light inside braking may be required again in order to prevent the turn stopping too soon, and the remaining energy then converting to a steep climb, with resulting shooting forward. Make sure you recover with plenty of height to spare. In general recovery takes the same time as the entry, but your sink speed will be higher.

The PI comes out of a spiral by itself if a neutral sitting position is maintained. Active weight shift into the turn and a carabiner distance of more than 44 cm can lead to stronger acceleration and a less spontaneous recovery.

Caution: the PI was tested in accordance with current certification standards. With a neutral sitting position and the release of inside brake a steep spiral of up to 14 m/s recovers by itself. Spirals of a higher sink rate with inside weight shift can become stable, and continue to turn. Weightshift to the outside, or application of outside brake is enough to recover from a high rate steep spiral.

Caution: Due to the high wing loading high sink rates can be reached quickly.

B-Stall

A B-Stall is not possible with a PI because the A and B lines are connected.

Stalling

One sided stall (spin)

ADVANCE recommends that you do not try this manoeuvre with the PI because of the extremely high momentum effects that will be called into play.

A strongly rising brake load while the pilot is tightening a turn is the PI's clear and early warning of the risk of spinning. Even so, if a wing should stall, immediately release the brakes completely, so that the PI can return to normal flight.

> Tip: Basically in all uncontrolled flight situations, but especially at the onset of spin rotation, you should fully release both brakes

Fullstall

The PI fullstall is very dynamic. It can be flown, but ADVANCE do not recommend it.

Parachutal stall

Stable parachutal stall cannot be achieved with a dry wing. In rain with a wet canopy the PI, like other paragliders, is prone to parachutal stall. If the wet paraglider does go into parachutal stall recover by pushing on the A risers. See also section "Flying with a wet paraglider".

Landing

Always make a good circuit with a defined final approach. Keep sufficient speed, then apply increasing brake to level out the flightpath as the ground comes up, finally going through to full brake for a zero speed touchdown. When landing in zero wind be prepared to take two or three run-out steps.

> Caution: Steep turn reversals cause large pendulum swings of the pilot; this should be avoided near the ground.

Caution: Braking gives you low speed and a high sink rate; you can also be sure that manoeuvrability will be greatly restricted.

Caution: Flying below minimum speed leads to stalling; this should unquestionably be avoided when top landing, and on final approach.

Caution: Never let your paraglider fall onto its leading edge. The overpressure produced inside the wing can cause tears in the ribs and leading edge.

Flying with a wet paraglider (parachutal stall)

Flying with a wet glider creates a risk of deep stall. Deep stall is often the result of a combination of factors. The weight of the wet canopy goes up, and this increased weight increases the angle of attack, which always puts the glider nearer the deep stall limit. Added to this, water drops on the top surface have a detrimental effect on the laminar flow of the boundary layer near the leading edge, which distinctly reduces the maximum lift coefficient. If the wet glider is also being flown at its lower weight limit there is a further small effect of increasing the angle of attack, as well as there being a lower airspeed because of the reduced wing loading.

In order to guard against the risk of parachutal stall with a wet glider you should brake as little as possible. If the wet glider still goes into parachutal stall recovery can only be made by pushing on the A risers. See also section ”Parachutal stall”.

Winching / Paramotoring

The PI is not suitable for winching or paramotoring; it was designed for Hike&Fly.

Acro flying

Because of its lightweight construction the PI is not suitable for acro flying. ADVANCE strongly advise against flying acro manoeuvres with the PI.

Maintenance, repairs and care

Packing

Pack your PI rib on rib at the leading edge, so that the plastic wires lie as flat as possible on each other, and are all at the same level. This will give the glider the best chance of a long life, and will keep its good inflating qualities. Vary the position of the final fold at the glider centre so that the same cell is not always on the outside. You can compress the PI in its tapered inner bag to a small volume, and it will fit perfectly in your PIPACK or EASINESS.

Only pack or store your paraglider when it is dry.

Care and maintenance

Ultraviolet light, heat, humidity, sea water, aggressive cleaning agents, unsuitable storing and physical abuse (dragging across the ground) speed up the ageing process. The life of a paraglider can be extended significantly by observing the following advice:

- Let a wet or damp glider dry by leaving it completely unpacked at room temperature, or outside in the shade.
- If the glider gets wet with salt (sea) water rinse it thoroughly with fresh water.
- Clean the glider only with fresh water, and a little neutral soap if necessary. Do not use solvents under any circumstances.
- If the glider has been subjected to increased stress (such as a tree landing) have it examined by an expert.
- Regularly remove sand, leaves, stones and snow from the cells. Openings with Velcro closures are provided at the wing tips for this purpose.
- Do not leave the glider out in the sun unnecessarily before and after flight (UV light).
- Do not subject the packed glider to excessive temperature fluctuations, and do ensure adequate air circulation to prevent condensation forming.
- Do not drag the glider across the ground.
- When landing, make sure that the canopy does not fall on its leading edge.

Handle with care: All these points are especially important for looking after a light glider.

What to do if the leading edge gets damaged?

If a plastic rod breaks or its seam rips the glider must be taken to an ADVANCE checking facility where the rod can be replaced or sewn back in. To guarantee a long lifespan it is important that the wing is not allowed to fall on its leading edge after landing, otherwise the fabric can be damaged by abrasion. But mainly there is a risk, as in all paragliders, that the ribs could tear.

Check

A new ADVANCE paraglider must be given a check every 24 months (2 years). With intensive use (> 100 flights per year, or excessively demanding use) an annual check is needed, after the first check. When a check is carried out the condition of all materials is assessed in accordance with strict guidelines, and tested with great care. Finally the overall condition of the glider is rated and recorded in a test report. You can find additional information about the check in this manual in the section «Service», or at www.advance.ch.

Repairs

As a general rule you should not attempt to repair a paraglider yourself. The various seams and lines are made with great precision, and, for this reason, only the manufacturer or an authorised service centre may fit identical replacement parts or replace entire cells. Exceptions to this rule are the replacement of lines and the repair of small tears (up to 5 cm) or holes in the fabric that may be glued with the self-adhesive ripstop included in the repair kit. After a repair, or the replacement of a line, the glider must always be opened out and checked on the ground before the next flight.

Disposal

Environmental protection plays an important role in the selection of materials and the manufacture of an ADVANCE product. We use only non-toxic materials that are subjected to continuous quality and environmental impact assessments. When your paraglider reaches the end of its useful life in a number of years' time, please remove all metal parts and dispose of the lines, canopy and risers in a waste incineration plant.

Technical details

PI		**19**	**23**
Flat surface	m^2	19.00	23.00
Projected surface	m^2	16.51	19.98
Take off weight [2]	kg	50 – 95	65 – 115
Glider weight	kg	2.45	2.85
Aspect ratio		4.5	4.5
Trim speed [1]	km/h	42 +/- 1	42 +/- 1
Min. sink rate [1]	m/s	1.25	1.25
Best glide [1]		8.1	8.1
Span	m	9.26	10.19
Projected span	m	7.49	8.24
Projected aspect ratio		3.4	3.4
Max. chord	m	2.56	2.82
Min. chord	m	0.58	0.63
Number of cells		35	35
Number of risers		2	2
Riser length	cm	48	48
Max. length of the lines with the risers	cm	583	642
Min. speed [1]	km/h	24	24
Certification		EN/LTF C	65 – 99 kg / EN/LTF B 100 – 115 kg / EN/LTF C
Weight PIPACK	kg	0.35	0.35
Volume PIPACK	lt	36	36

* The weight of each size can vary up to 100 g as a function of the fabric manufacture process.
1 Values depend on wing loading (pilot/harnesses and glider) 2 Pilot, wing, equipment

Materials used

We routinely inspect and test our materials many times over. Like all ADVANCE products the PI is designed and produced as a result of the latest developments and knowledge. We have chosen all the materials very carefully, under conditions of the strictest quality control.

The PI leading edge is made of 40gr cloth. This feature and the fact that each cell is individually supported significantly account for the PI's long life.

Leading edge:
Skytex 40, 9017 E77A, 40 g/m2

Upper surface:
Skytex 27, 70000 E3H, 27 g/m2

Lower surface:
Skytex 27, 70000 E3H, 27 g/m2

Ribs:
Skytex 27, 70000 E91, 27 g/m2

Leading and trailing edge borders:
Polyester laminated 20 mm

Lower surface leading edge borders:
Polyamid 16 mm

Lines:

- Edelrid Technora (Aramid) 6843, 240/200/120, covered, 2.4 mm / 1.9 mm / 1.4 mm (base lines)
- Edelrid Technora, 8000 U, 90/70, uncovered, 0.8 mm / 0.7 mm (middle gallery)
- Edelrid Technora, 8000 U, 70/50, uncovered, 0.7 mm / 0.5 mm (upper gallery)
- Liros Dyneema, DSL 70 / DFL 115, covered, 0.95 / 1.3 mm (brake lines)
- Liros Dyneema, DFL 115, covered, 1.3 mm (upper brake lines) DFLP 200, Dyneema/Polyester, covered 1,9 mm (lower brake lines)

Risers:
Dyneema 7 mm, 1000 kg

Certification

The PI has EN and LTF certification. The certification criteria can be downloaded from www.advance.ch.

- 19er: 50 kg – 95 kg: EN / LTF C

- 23er: 65 kg – 99 kg: EN / LTF B
  100 kg – 115 kg: EN / LTF C

The certification rating can only provide limited information about a paraglider's flying behaviour in thermally active and turbulent air. The certification grading is based primarily on provoked extreme flight manoeuvres in calm air.

During the development of an ADVANCE paraglider, the emphasis is first and foremost on flying behaviour and handling, and not exclusively on the certification test. The result is a well-rounded product with the familiar ADVANCE handling. Nevertheless, the certification rating occupies a significant proportion of the specifications that have to be met.

Service

ADVANCE Service Centres

ADVANCE operates two company-owned service centres that carry out checks and repairs of all types. The workshops based in Switzerland and France are official maintenance operations, certified by the German Hanggliding and Paragliding Federation (DHV), which has many years' experience and in-depth product-specific expertise.

The ADVANCE worldwide service network includes other authorised service centres that provide the same services. All service facilities use original ADVANCE materials exclusively. You can find all information on checks and repairs and the relevant addresses at www.advance.ch.

The ADVANCE website

At www.advance.ch you will find detailed information about ADVANCE and its products, as well as useful addresses which you can contact if you have any questions.

Among the things you will be able to do on the website are:
- complete the warranty card online up to 10 days after purchasing the glider, enabling you to enjoy the full benefits of the ADVANCE warranty.
- find out about new safety-related knowledge and advice concerning ADVANCE products.
- download an application form in PDF format which you can use when sending your glider in for a check at ADVANCE.
- find an answer to a burning question among the FAQs (Frequently Asked Questions).
- subscribe to the ADVANCE Newsletter so that you will be regularly informed by e-mail about news and products.

It is well worth visiting the ADVANCE website regularly because the range of services offered is continuously being expanded.

Warranty

In order to enjoy the full benefits of the ADVANCE warranty, you are requested to complete the relevant form on the website in the «Warranty» section within 10 days of purchase.

As part of the ADVANCE warranty, we undertake to rectify any defects in our products that are attributable to manufacturing faults. In order for a warranty claim to be made, ADVANCE must be notified immediately on discovery of a defect and the defective product sent in for inspection. The manufacturer will then decide how a possible

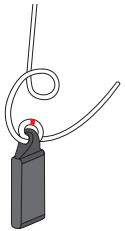
manufacturing fault is to be rectified (repair, replacement of parts or replacement of the product). This warranty is valid for three years from the date of purchase of the product.

The ADVANCE warranty does not cover any claim other than those listed above. Claims in respect of damage resulting from careless or incorrect use of the product (e.g. inadequate maintenance, unsuitable storage, overloading, exposure to extreme temperatures, etc.) are expressly excluded. The same applies to damage attributable to an accident or normal wear and tear.

List of parts

Bowline knots

Step 1

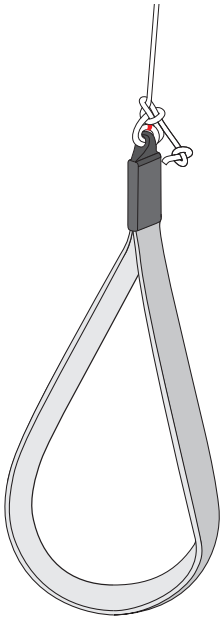


Step 2

Step 3

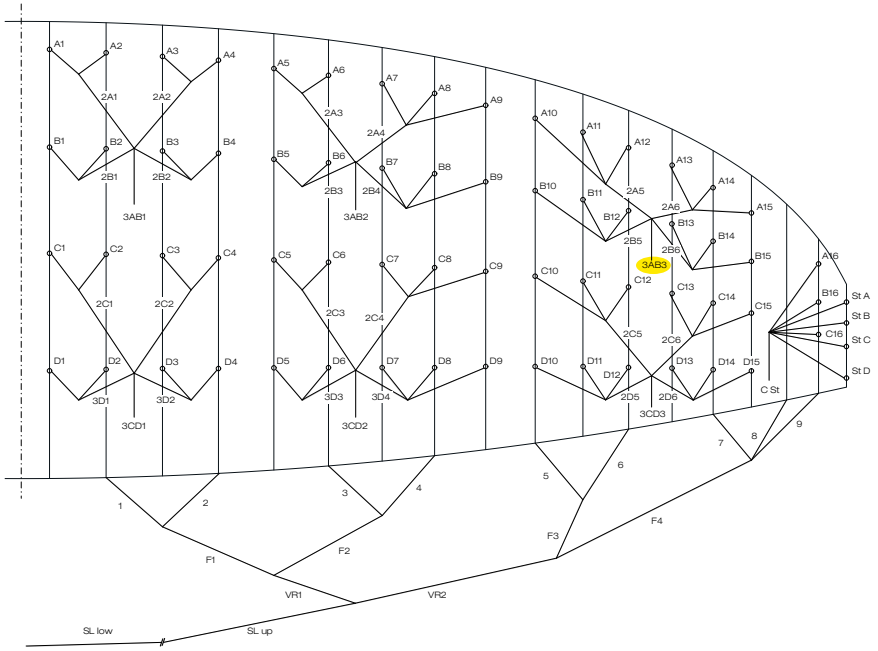
Step 4

Step 5

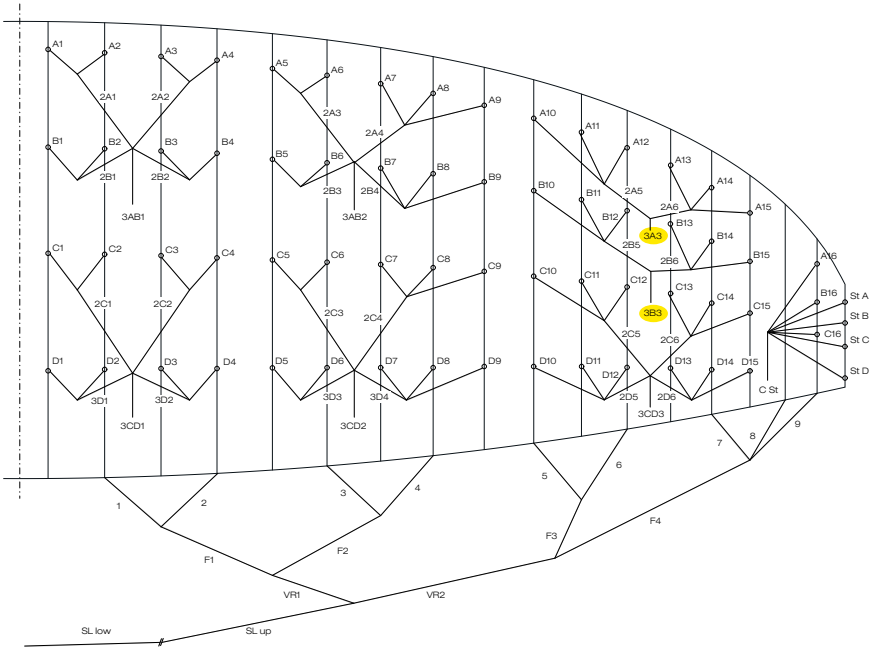


Line plan

ADVANCEPI 19



ADVANCEPI 23



Risers

Standard

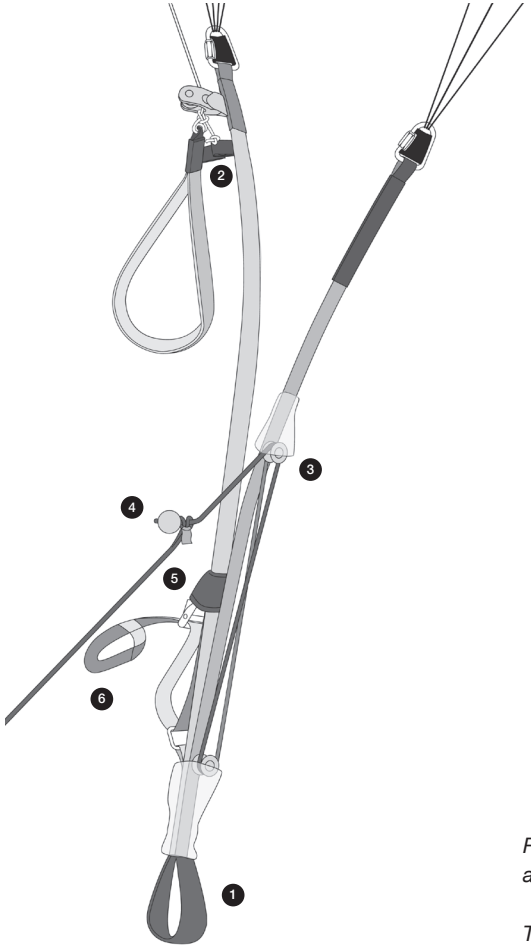
1. Main suspension points
2. Magnet clips

Optional risers with accelerate system

1. Main suspension points
2. Magnet clips
3. Pulley speed system
4. Linkage ball
5. Trimmer
6. Stowable trimmer loops

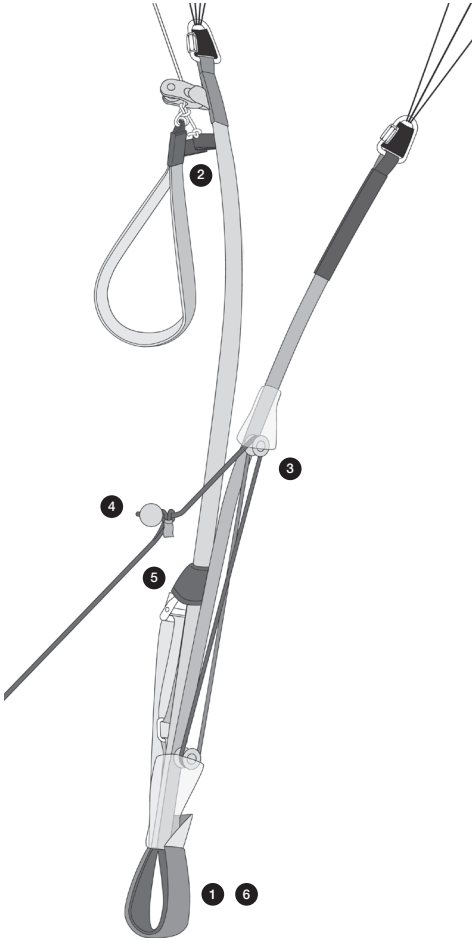
See section ”Appendix to manual”, page 34 and the following.

Risers standard



Risers with accelerate system

Trimmers in use



Risers with accelerate system

Trimmers stowed

Appendix to manual

Optional risers with speed system and trimmers

The PI is certified with risers that do not have an accelerate system. The PI can be fitted with optional risers that include an accelerate system (speed bar and trimmers), but it should be understood that if the glider is fitted with this accelerate system, instead of the original risers, its certification does not apply.

This accelerate system gives a speed increase on the trim speed of 12 km/h with the speedbar, or 8 km/h with the trimmers. In accelerated flight the front risers are shortened, thus reducing the angle of attack of the wing. The trimmers achieve a similar result by lengthening the back risers. When full speedbar is applied there is virtually no load on the rear risers. Releasing the trimmers will then further slacken the C and D lines without adding to the speed. There is no advantage to be gained by using speedbar and trimmers together.

The PI remains exceptionally stable when accelerated, but paragliders in general become less stable at their upper speed ranges because of the reduced angle of attack. Because of the higher forces involved at high speed collapses can then be more impulsive.

Speed lines

Adjust the PI speed lines properly before the first flight. Make sure that the lines run freely through all the pulleys on the harness. Connect the speed lines to the risers using the loop and ball method (Chicken Loop System). Finally check that your set up allows the whole system travel to be used. To best do this hang up the harness, connect the risers and get someone else to hold them up in the flying position.

Caution: The speed lines are correctly adjusted when you can use the full range of the speed system. Make particularly certain that the lines are not adjusted too short, so that the wing would be accelerated all the time.

When flying into strong turbulence while accelerated first let the speedbar go completely before applying the necessary stabilising brake. The high stability of the PI allows it to be flown through light turbulence while accelerated. Active speedbar should be used when doing this by adjusting the angle of attack with the speedbar instead of the brakes. By doing this pitching can be kept to a minimum and the best glide performance achieved.

Tip: Be careful not to use speedbar at the same time as brake, or you will find yourself in the worst possible gliding situation, with no advantage.

Trimmers

The trimmers come into action if the speedbar cannot be used (e.g. crampons on the feet).

Caution: Before takeoff always make sure that the trimmers are closed.

Caution: Close the trimmers in good time in turbulence.

Info: Closing the trimmers in turbulence needs some practice and takes time.

Info: If you wish to disable the trimmers you can secure their loops in the carabiners with the risers.

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